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ABSTRACT

The purpose of this study was to determine whether persons identified as having either a low or a high degree of apprehension toward writing encode information differently. Behavioral patterns similar to those exhibited by persons who are apprehensive about speech were investigated. Results of a study of 19 high-apprehensive and 21 low-apprehensive college students supported the prediction that written messages produced by high apprehensives and low apprehensives differ significantly in structure, language use, and amount of information conveyed. Patterns similar to those exhibited by persons who are apprehensive about oral communication emerged through content analysis. (Author/AA)

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SOME EFFECTS OF APPREHENSION ON WRITING PERFORMANCE

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Abstract

The purpose of this study was to determine whether persons who were identified as having a high or low degree of apprehension toward writing encode information differently. Behavioral patterns or trends similar to those exhibited by persons who are apprehensive about speech communication were investigated. The results generally support the prediction that written messages produced by high and low apprehensives differ significantly in structure, language use, and amount of information conveyed. Patterns similar to those exhibited by persons who are apprehensive about oral communication also emerged through content analysis. Individuals identified as high and low apprehensives by the Miller and Daly Writing Apprehension Test performed as predicted, which supports the validity of the instrument as a measurement of writing apprehension.

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Numerous studies on communication apprehension have identified this widespread phenonmenon as a debilitating handicap. Research on the impact of apprehension on communication behavior and effectiveness has been limited almost exclusively to speech. By analogy and observation, there is reason to believe that certain speech communication behaviors manifested by anxious persons might also be evidenced in written communication.

This study was conducted to discover if high and low apprehensives produce significantly different structural patterns in writing, which would indicate that they encode information differently. If they follow patterns evidenced by speech apprehensives, it would support the notion that the apprehension variable is pervasive. Although the structural elements of oral and written messages are not isomorphic, both modes are affected by the same grammatical constraints of the language.

While it may be obvious that apprehension affects communication effectiveness, there is a lack of information on the ways in which apprehension is manifested in written messages. One way to acquire this information may be through an analysis of writing patterns. If it can be determined that persons who are anxious about writing tend to use certain grammatical structures repeatedly, and rely on certain types of language use, such persons can then be helped to overcome these ineffective patterns. It is often not so much a matter of whether or not a person can communicate; even functional illiterates can--to a degree. The problem

centers on the quality of the communication. Familiarity with the basic elements of grammar is essential, of course, but it does not determine whether or not one can write effectively. It is the control and manipulation of grammatical structure which determines the quality of a message and insures that ideas are conveyed clearly.

When we speak or write, we depend on certain patterns or regularities of a language. According to Weaver (1972, 269), "All students of language concede to it a certain public character. Insofar as it serves in communication, it is a publicly-agreed-upon thing; and when one passes the outer limits of the agreement, one abandons comprehensibility. Language is a standard objective reality, analyzable into categories which have inherent capabilities. A knowledge of these objective potentialities can prevent a loss of force through friction. Friction...occurs whenever a given unit of the system of grammar is tending to say one thing while the semantic meaning and the general organization are tending to say another." It is important, then, to understand the congruence between total intent of the message and the major elements of the language.

The objection often made to using a category system to analyze a message is that no single element can be appraised apart from the whole. The researcher, however, assumes that within greater effects there are lesser effects. To understand the whole, it is necessary to identify the parts. For example, framing a sentence requires uniting two or more classes. The formal unity is built up through

many associations, and through repeated congruence of elements becomes a recognizable pattern. "When we thus grasp the scope of the pattern before we interpret the meaning of the components, we are being affected by grammatical system" (Weaver, 271). Categorical analysis alone reveals very little beyond quantitative data. When the data are related to a larger design, they may help illuminate the reasons for the degree of success or failure to achieve communication effectiveness.

In situations which require oral communication, individuals who are highly apprehensive speak less and disclose less about themselves (Hamilton, 1972). Branden (1969) suggests that persons who speak less reduce the risk of exposure and damage to an already low self esteem. Since anxious persons have less confidence in their opinions and judgments, they are likely to protect themsleves by withdrawing from or avoiding threatening communications situations. On the other hand, confident speakers are likely to initiate communication, and to attempt to persuade or influence others. Research indicates that communication apprehension may be the result of prior conditioning. Children who have been punished or ignored for their communication attempts may become apprehensive (Gergen, 1971). In support of this view, Garrison and Garrison (1975) report that mean apprehension levels increase through elementary school and into undergraduate years in college. Since prior conditioning appears to affect the level of communication apprehension in speaking, it would seem by analogy that anxious individuals would be similarly affected when required

to write. If their writing experiences have been negative, they may avoid the risk of exposure and damage to self esteem. The risk factor may be more pronounced in written communication. Traditionally, the written word symbolizes a permanence not associated with the spoken word. It suggests a commitment that is not easily retracted.

If anxious persons avoid situations where writing is required, in the classroom for instance, their writing skills may not develop sufficiently to allow them to perform effectively. Even though they may have mastered the essential grammatical elements of the language, they may not have learned to manipulate or control them. "They lack the necessary competence gained through experience and thus, when encountering a situation where they are forced to write, do poorly and justify their expectation of failure" (Miller & Daly, 1975). Phillips (1968) did not agree with this view, and suggested that high apprehensives who are reticent in oral communication would be willing to communicate in writing. To test his suggestion, Miller and Daly (1974) conducted a correlational study using the Personal Report of Communication Apprehension (PRCA) (McCrosky, 1972), the Receiver Apprehension Test (RAT) (Wheeless, 1974), and the Writing Apprehension Test (WAT) (Miller & Daly, 1974). They anticipated a significant negative correlation between PRCA and WAT. The results of the study did not confirm the inverse relationship, and they concluded "...that there is a tendency for individuals with high anxiety about oral communication to also be apprehensive about written communication." It appears, then, that

individuals who are apprehensive about communication may manifest similar patterns of behavior in both oral and written performance.

In summary, in oral communication situations high apprehensives are more reticent, speak less, disclose less about themselves and have less confidence in their opinions and judgments than low apprehensives. By analogy it was predicted in this study that high apprehensives, when asked to produce a written message, would generate shorter responses, reveal less information, and express that information in patterns significantly different from low apprehensives.

DEFINITIONS

The primary purpose of this study was to discover if high and low apprehensives identified by WAT encode information differently, and generate different patterns of expression. To determine these patterns, a content analysis was made. It was anticipated that high apprehensives would generate fewer words in writing just as they express less orally. A simple word count was made to find the length of response. A word was considered any symbol, including a number, bound by white space on either side.

To determine trends in patterns in language use which might help explain differences in amount of information conveyed, and method of expression, three parts of speech (nouns, pronouns, adjectives), and one sentence element (prepositional phrases) were calculated. Sentence and paragraph lengths were counted, as were number of misspelled words. Conventional methods were used to count sentences and paragraphs.

Amount of information was translated to "bits" of information. The term "bit" of information is commonly used in information theory to refer to a type of data measurement. Karbowiak (1972, 20-21) suggests that the term is confusing. "It does not really help to say that a telegraph message "arrive tomorrow" carries 20 bits of information: it would really be better and less confusing to say that the given telegraph message takes 20 bits of data to transmit, notwithstanding any meaning of information contained in it." Since amount of information was one aspect included in the present content analysis, it was necessary to find some method of quantifying meaning within grammatical constraints. Karbowiak (20) suggests that "Pattern identification is an example of encoding where you ascribe one symbol to a group of patterns. As such it is an example of a many to one translation."

To apply this suggestion, the grammatical patterns which carry the symbolic (or conventional) labels phrase, clause, sentence, were identified. Yes/no questions were applied to each patte[illegible] The questions asked were: 1. Does this phrase, clause, sentence contain a central idea? and 2. Has this idea been expressed before? The type of binary decision made in response to the yes/no questions was the measure of bits of information. For example, consider the following passage taken from an individual's response in this study: "Yes. Yes, I agree because other schools serve alcoholic beverages." The first yes constitutes a simple sentence with an unexpressed subject and predicate. In answer to the question, Does this sentence contain a central idea? the answer is,

yes, because it states agreement. In response to the second question, Has this idea been expressed before?, the answer is, no. Therefore, the first sentence has one bit of information. The second sentence, composed of two clauses also has one bit of information. The first clause is a repetition of the idea expressed in the previous sentence so it is not counted. The second clause provides new information. A variation of meaning within a pattern, such as an amplification or extension of a central idea, was not counted as an additional bit of information.

METHODS

SUBJECTS

This study was conducted during the spring of 1976. One hundred eighty students enrolled in a basic writing course at the University of Nebraska-Lincoln were used as subjects. Although the course is designed primarily for sophomores, it is open to all students. All the subjects were given the Writing Apprehension Test. From the 180, nineteen were identified as high apprehensives and twenty-one as low apprehensives. There were 8 freshmen (20%), 23 sophomores (57%), 6 juniors (15%), and 3 seniors (8%).

PROCEDURES

A list of seven current campus issues was compiled. The experimenter asked twenty students not involved with the study to rank order the issues on the basis of the following statement: If you could express your opinions to the University Administration

about any of the following issues, which would be your first preference, your second preference, etc. Sixteen out of twenty chose the issue of beer and alcohol on campus.

Subsequently, the original 180 students were told during their regular class sessions that their opinions were being solicited by the University Administration on a campus issue. They were assured that their anonymity would be maintained, and that their social security numbers would be used only for computer printout identification. They were then handed a booklet with a cover which requested general information and explained the procedure. The issue was stated at the top of the following page: "The administration is interested in student opinion about the use or non-use of beer and/or alcoholic beverages in on-campus living units and/or student unions. What is your opinion, and why?" The rest of the page and another sheet were provided for the response. The students had approximately 40 minutes of the regular 50 minute class period to respond.

After all 180 responses were collected, they were matched by social security numbers with the WAT computer printout. Forty high and low apprehensives were identified. The responses were then content analyzed manually according to the categories already described.

The students were debriefed in later class sessions, and were once again assured that their anonymity would be maintained.

RESULTS

A word count of the responses produced by low and high apprehensives revealed that the low apprehensives wrote three times as

TABLE I. ANALYSIS OF RESPONSE PERFORMANCE BY HIGH APPREHENSIVES

#	WAT SC	Length of Response	No. of Para	Ave. No Wds P-Para	No. of Sen	Ave. Wds P-Sen	Nouns & %* Total Len	Pronouns & % Total Len	Adj. & % Total Len	No. of Prep Phs. & % Total Length	Ave. Wds. per Prep Ph	% Wds in Prep Ph Rel to Total Len	Spelling Errors	Bits Infor
1	94	34	1	34	2	17	3 (9)	4 (12)	4 (12)	4 (12)	3	(35)	4	2
2	90	27	1	27	1	27	2 (7)	2 (7)	2 (7)	5 (18)	2	(37)	1	2
3	88	52	1	52	3	17	8 (15)	7 (13)	9 (17)	2 (4)	2.5	(10)	1	2
4	88	130	1	130	6	22	29 (22)	8 (6)	29 (22)	16 (12)	3.4	(42)	3	3
5	87	44	1	44	2	22	6 (14)	3 (7)	9 (20)	4 (9)	3.4	(32)	3	2
6	81	40	2	20	2	10	7 (17)	2 (5)	7 (17)	5 (12)	3	(37)	3	2
7	79	54	1	54	3	18	6 (11)	5 (9)	8 (15)	5 (9)	3	(28)	2	2
8	78	39	1	39	2	19	4 (10)	3 (7)	5 (13)	4 (10)	3	(31)	3	2
9	78	48	2	24	3	16	7 (14)	4 (8)	10 (21)	3 (6)	4	(25)	2	3
10	76	63	2	31	3	21	9 (14)	5 (8)	12 (19)	6 (10)	4	(38)	2	3
11	75	38	1	38	2	19	5 (13)	6 (16)	5 (13)	4 (10)	2.5	(26)	4	2
12	75	57	3	19	4	14	6 (11)	4 (7)	10 (18)	5 (9)	3.2	(28)	2	3
13	74	60	1	60	3	20	8 (13)	7 (11)	9 (15)	5 (8)	3	(25)	1	3
14	73	50	1	50	2	25	10 (20)	4 (8)	12 (24)	5 (10)	3.2	(32)	0	2
15	73	43	2	21	2	21	5 (12)	3 (7)	8 (19)	3 (7)	4	(28)	3	3
16	72	47	1	47	3	16	6 (13)	4 (8)	6 (13)	4 (8)	3	(26)	2	2
17	71	59	2	29	3	19	12 (20)	6 (10)	12 (20)	6 (10)	4.3	(44)	3	2
18	71	73	3	25	4	19	13 (18)	4 (5)	15 (21)	6 (8)	3	(25	5	3
19	71	156	2	78	8	19	37 (24)	10 (6)	33 (21)	23 (15)	2.9	(43)	1	3

* All percentages are enclosed in parentheses

TABLE II. ANALYSIS OF RESPONSE PERFORMANCE BY LOW APPREHENSIVES

#	WAT SC	Length of Response	No. of Para	Ave. No Wds P-Para	No. of Sen	Ave. Wds P-Sen	Nouns & %* Total Len	Pronouns & % Total Len	Adj. & % Total Len	No. of Prep Phs. & % Total Length	Ave. Wds. per Prep Ph	% Wds in Prep Ph Rel to Total Len	Spelling Errors	Bits o Infor
1	51	121	1	121	6	20	33 (27)	10 (8)	21 (17)	12 (10)	3	(30)	1	6
2	51	93	5	19	6	16	20 (22)	9 (10)	11 (12)	9 (10)	3.2	(31)	0	5
3	49	101	3	33	7	14	23 (23)	9 (9)	23 (23)	5 (5)	3	(15)	1	7
4	49	94	3	31	4	23	21 (22)	7 (6)	19 (20)	9 (10)	2.9	(29)	1	5
5	49	96	4	24	6	16	16 (17)	11 (11)	15 (16)	7 (7)	2.4	(18)	1	6
6	48	117	3	39	7	17	29 (25)	5 (4)	24 (21)	14 (12)	3	(36)	0	7
7	47	107	1	107	8	13	29 (27)	11 (10)	17 (16)	13 (12)	2.4	(29)	0	9
8	47	136	4	34	7	19	36 (26)	12 (9)	17 (12)	23 (18)	2.5	(42)	2	8
9	45	128	4	32	8	16	24 (19)	10 (8)	15 (12)	13 (10)	3	(30)	1	6
10	45	183	4	46	13	14	40 (22)	27 (14)	11 (6)	22 (12)	2.6	(31)	0	15
11	44	142	2	71	6	24	35 (25)	15 (10)	30 (21)	19 (13)	3	(40)	0	10
12	44	318	3	106	15	21	60 (19)	30 (9)	54 (17)	22 (7)	2.8	(19)	2	18
13	42	68	3	23	4	17	10 (15)	7 (10)	15 (22)	13 (19)	3	(62)	3	4
14	42	180	2	90	12	15	42 (23)	25 (14)	40 (22)	25 (14)	3	(42)	0	10
15	39	176	3	59	11	17	36 (20)	24 (13)	25 (14)	20 (11)	3	(34)	0	10
16	38	190	2	94	10	19	38 (20)	17 (8)	30 (16)	23 (12)	2.8	(34)	0	11
17	37	150	3	50	11	14	30 (20)	12 (8)	16 (11)	21 (14)	2.9	(41)	1	12
18	37	231	4	58	14	16	45 (19)	20 (9)	39 (17)	15 (6)	3	(19)	1	16
19	35	258	4	64	13	20	52 (20)	26 (10)	30 (12)	24 (9)	3.2	(30)	2	15
20	32	149	2	74	7	21	33 (22)	10 (7)	31 (21)	18 (12)	2.8	(34)	2	8
21	29	386	4	96	20	19	78 (20)	32 (8)	70 (18)	20 (5)	3	(16)	0	19

*All Percentages are enclosed in parentheses

many words as the high apprehensives. Individual scores are reported in Table I and II. (Tables I & II About Here) Low apprehensives wrote a total of 3424 words with 62% in the 100-200 word category. High apprehensives wrote a total of 1114 words with 52.6% of the responses falling between 40 and 50 words. Low apprehensives wrote approximately twice as many paragraphs (LA-64 : HA-29) which were about 1 1/2 times longer than the high apprehensives. Low apprehensives wrote 3 1/2 times as many sentences (LA-191 : HA-56) which averaged two words less per sentence than the high apprehensives (LA-17.9 : HA-19.9). Low apprehensives used 4 times as many nouns or 5% more (LA-730 : HA-183). Although low apprehensives used 553 adjectives while high apprehensives used 205, a comparison with the total length showed a 2 1/2% greater use of adjectives by the high apprehensives. Low apprehensives used 3 1/2 times, or 1.4% more pronouns than high apprehensives (LA-329 : HA-91). Low apprehensives wrote 347 prepositional phrases, and high apprehensives 115, a ratio of 3 to 1. However, the percentage of words high apprehensives included in prepositional phrases by proportion to total length was 4% greater than the percentage included in low apprehensives. High apprehensives had 2 1/2 times as many spelling errors (LA-18 : HA-45) as low apprehensives. Responses from low apprehensives contained a total of 207 bits of information compared with 46 from high apprehensives. Composite counts and percentages appear in Table III. (Table III About Here) The percentages do not add to 100 because parts of speech were sometimes double counted. They were calculated separately and as

TABLE III. COMBINED RESPONSES FOR LOW AND HIGH APPREHENSIVES

	Total Length	Ave. No. Para	Ave. Wds. P-Para	Total No. Sen	Ave. Wds P-Sen	Total No. Nouns	% Nouns To Total Len	Total Pronouns	% Pro. To Total Len	Total No. Adj	% Adj To Total Len	No. Prep Phrases	% Prep Ph Total Len	% Wds in Prep Ph Rel. To Total Len	Total Spell Errors	Bits of Info.
LA	3424	64	53.5	191	17.9	730	21.3	329	9.6	553	16.1	347	10.1	29	18	207
HA	1114	29	38.4	56	19.9	183	16.4	91	8.2	205	18.4	115	10.3	32.8	45	46

words within prepositional phrases.

DISCUSSION

The results of this study generally support the prediction that written messages produced by individuals identified as high and low apprehensives differ significantly in structure, language use, and amount of information conveyed. Just as individuals who are apprehensive about oral communication speak and disclose less about themselves, individuals identified by WAT as apprehensive about writing, write and divulge less information. The highly apprehensive subjects in this study produced 3 times fewer words and conveyed 4 1/2 times less information. These findings substantiate previous research suggesting that anxious persons have less confidence in their opinions and judgments, and are likely to reduce risk of exposure by revealing less about their views. This reticence may well be associated with negative prior experiences. Those experiences often lead to avoidance of writing tasks and subsequent underdeveloped skills.

Although there were variances in individual performances, certain strong patterns of language use emerged. The ratio of 3 to 1 (total length of response) held in several instances which would indicate that as length increases, certain patterns of usage prevail. For example, the number of prepositional phrases in a ratio of 3 to 1 was maintained as an average by both high and low apprehensives. However, the high apprehensives included 4% more words in their prepositional phrases. Additionally, a scan of sentences in the

responses from both groups revealed a tendency by the high apprehensives to string prepositional phrases. This stringing tendency coupled with a greater use of adjectives (2 1/2 times more than low apprehensives) helps account for the limited amount of information divulged. This reasoning is supported by a comparison of adjective-noun usage. Low apprehensives used 5% more nouns and 1.4% more pronouns. Grammatically, nouns and pronouns are referred to as substantives. This means they carry the essence or main ideas of a sentence. The other words in a sentence interact with nouns in various relationships. Verbs, for example, indicate the movement or direction of the idea and combine with nouns into a formal unit or pattern. Adjectives and prepositional phrases describe, explicate and amplify main ideas. Therefore, when an individual uses more adjectives and prepositional phrases in proportion to nouns and pronouns, it is likely that the message produced will have fewer main ideas and more description and amplification. This appears to be the case with the high apprehensives in the present study. Proportionately, they used more words to say less. Low apprehensives used more nouns in direct, succinct statements. When they elaborated reasons in support of the statements, they relied primarily on concise structural patterns, including lists. High apprehensives, on the other hand, constructed more rambling statements using nouns and adjectives in prepositional phrases rather than in noun phrases. This latter point is demonstrated by the two interesting exceptions in the high apprehensive group who wrote more than any other individuals in their group (130 and 156

words). Despite the lengths of their responses, they conveyed very little information. A comparison of their scores with the closest like scores in the low apprehensive group does not show marked differences except in number of bits of information and percentage of adjectives. In each case, the high apprehensives conveyed only three bits of information, while their counterparts conveyed 8 and 12, respectively. However, the high apprehensives used 10% more adjectives which would indicate that they buried their adjective noun combinations in prepositional phrases rather than in noun phrases.

There are three more interesting variances. The content analysis showed that the high apprehensives had 3 times more misspelled words than the low apprehensives. Also, the high apprehensives, as a group, had more non sentences and elliptical structures than low apprehensives. These occurrences may again reflect underdeveloped writing skills, a possible result of avoidance of writing tasks and lack of experience.

One of the problems with measuring the effects of apprehension on written communication is determining what constitutes effectiveness. If effectiveness is defined as the ability of a receiver to accurately decode a message, then the importance of patterning becomes clearer. Semantical meaning is conveyed by patterns available within a language. The patterns are subject to grammatical constraints. A decoder may be unable to make a decision about the information in a message, or his translation may be erroneous because of some kind of interference (noise).

"The effect of noise is to modify the sequence transmitted and make unequivocal decision difficult, or impossible to accomplish" (Karbowiak, 291). In written communication, one of the interferences is apprehension. It apparently affects an encoder's ability to manipulate and control language patterns with confidence. As a result, the receiver may not understand or may misunderstand the message. All persons share the grammar of their language. Yet, within grammatical constraints, each person expresses semantic information differently, and it is in the context of this expression that patterning is important.

There are many avenues to explore in the area of writing apprehension. This study attempted to investigate some general differences in encoding patterns between high and low apprehensives through a content analysis of certain grammatical features. The results show trends which are substantial enough to warrant further research. To analyze more fully and in greater detail, it would be preferable to use a computer program. Computer analysis would also help reduce possible rater error.

No attempt was made to measure language intensity or determine the proportion of abstract and concrete nouns, an investigation which should prove fruitful. This kind of language use reflects an individual's perception of his environment, and may help reveal degrees of apprehension. It should also be worthwhile to classify types of pronouns, whether they are personal or relative. The distinction should yield information on the immediacy-non immediacy variable which reflects attitudes of involvement. Verb choices,

active-passive voice, and types of sentences should also furnish additional clues to the degree of individual apprehension. While all of these elements are important means of identifying language patterns, it is how the patterns are used that may provide the key to what makes written communication effective.

In addition to the previously mentioned elements, more information should be gathered on prior writing experiences. When conducting studies, the salience of the topic, and the communication situation should be given careful consideration. It is quite possible, for instance, that an apprehensive individual may feel "comfortable" in a particular communication situation, but respond differently when required to write under more stressful conditions. However, Miller and Daly tested the WAT instrument with several different groups at different times to establish the generalizability of the instrument. Their studies indicated that writing apprehension may not be situation bound. On the basis of individual differences, it is logical to expect variances in quality of performance depending on the amount of stress in a given situation. This factor does not negate the theory that there are general patterns of response typical of persons who suffer varying degrees of communication apprehension. These patterns of response are a handicap to written as well as oral communication effectiveness.

Written communication is an essential aspect of educational and professional life. Apprehension severely limits or modifies an individual's ability to function with confidence and fulfill his/her aspirations. With a better understanding of this debili-

tating phenomenon, communication experts should be able to help those who are affected overcome their anxieties and improve their communication skills.

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